BOTANICAL GAZETTE.

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NOTES ON FESTUCA THURBERI.—Among the botanical collections of the Expedition of Lieutenant Wheeler, in 1873, made in Colorado, was a *Festuca*, which the writer described and published as *Festuca Thurberi*. The specimens were in a young, undeveloped condition, which prevented the recognition of their identity with the so-called *Festuca scabrella* of that region of country. Some time afterwards Prof. Porter sent specimens which made the connection clear. Still, as the grass in question had been referred to *Festuca scabrella* with some doubt, the writer entered into a critical investigation of the same, and became satisfied that it was not the plant described by Hooker in the Fl. Bor. Am. The plant described and figured in that work by Dr. Hooker was collected in the Rocky Mountains by Drummond, and referred to *F. scabrella*, Torr. Mss. Whether the species was ever published by Dr. Torrey we have not been able to learn. Not having access to the original specimens upon which Dr. Torrey founded his species, nor to those of Dr. Hooker, I could only compare the description given by Dr. Hooker and his figure with the specimens of the grass from Colorado which has been distributed in several collections as *Festuca scabrella*, or what I described as *Festuca Thurberi*. It seems hardly possible to connect the two descriptions, and the conclusion is, therefore, that there are two species under consideration. If, therefore, Dr. Hooker's plant be correctly referred to *Festuca scabrella*, the name *Festuca Thurberi* will still apply to the grass from Colorado and other portions of the Rocky Mountains. A *Festuca* from California has been distributed as *F. scabrella*. One also occurs under that name in Mr. E. Hall's collection of Oregon plants. The specimens of these plants which have come under my observation are certainly different from the one which I have described from Colorado. Whether they are the plant of Hooker's Flora or not, I will not now undertake to decide. I append an abstract of contrasted characters of the two grasses under discussion, those of *F. scabrella* drawn from the description in Hooker's Fl. Bor. Am., and those of *F. Thurberi* from Colorado specimens.

Festuca scabrella.—Culm 1 ft. high, erect, cæspitose, smooth, striate, chiefly one-leaved; leaves narrowly linear, acuminate, scarcely 2 inches long, vagina very long (under the lens scabrous); the remaining leaves also glabrous, mostly radical, with membranous sheaths, narrowly linear, 3–4 inches long, soon deciduous from the sheath; panicle compound, 3–4 inches, erect, branches spreading, toward the apex spicate; spikelets greenish-purple, 3–4 flowered, ovate, ¾ inches long, to the touch, or under the glass, minutely scabrous; glumes unequal, acute, almost twice shorter than the flowers, nerveless, without awns; flowers terete, outer valve 5-nerved, extended into a very short beard, inner valve lanceolate, flat, margin inflexed, scabrous at the flexules.

Festuca Thurberi. — Culm 2–2½ feet high, erect, cæspitose, not conspicuously striate, 2–4 leaved; leaves rigid, involute, 6 inches long, scabrous; radical leaves numerous, involute, rigid, 1–1½ ft. long, very scabrous on the margin, sheaths somewhat membranous, blade deciduous when old; panicle compound, 3–5 inches, a little drooping, 4–5 joints, branches slender, spreading when ripe, single or in pairs, branching below the middle; spikelets purplish, oblong-lanceolate (or cylindrical when young), wedge-shaped when expanded, 3–5 flowered, 5–6 lines long, slightly scabrous under the lens; glumes thin, membranaceous, shorter than the flowers, of nearly equal length, obtuse, or the lower one acutish, the upper one convex, not compressed, obscurely nerved, lower one slightly keeled; flowers cylindrical, convex (not compressed), outer palet obscurely 5-nerved, lanceolate, acute or short cuspidate, minutely scabrous; inner palet narrow, slightly hispid on the keels.

GEO. VASEY.

FLOWERS AND FERNS OF THE DELLS OF THE WISCONSIN.—The collections of Parry, who accompanied David Dale Owen in his geological reconnoissance of the Upper Mississippi and its tributaries, indicated that there were in Central Wisconsin, beside the local flora, plants of the Atlantic Coast—since extended botanically to the beaches of the Great Lakes—of the Southern States and of the far Northwest. The indefatigable labors of the lamented T. J. Hale and of Dr. I. A. Lapham have confirmed the supposition in a general way, so far as it relates to the larger rivers of Wisconsin flowing westward. During the summer just past we spent two weeks on and near the Dells of the Wisconsin, and while the principal object of our visit was not botanical, we believe our notes have sufficient interest to collectors elsewhere to repay the trouble of editing them. We have aimed at completeness only with the ferns, attempting further to give only a good idea of the characteristic vegetation. The time of our visit was August.

FLOWERS.—1. *Corydalis glauca*, Pursh. Common enough on the more exposed rock, but never found by us on the limestone in Southern Wisconsin, where we have collected during several years.

2. *Arabis petræa*, Lam. Very common, growing with *Sullivantia* on most shaded rocks.

3. *Hudsonia tomentosa*, Nutt. Near the railroad bridge at Kilbourn City. Nearly smooth and few-flowered stems.

4. *Mollugo verticillata*, L. So thoroughly established everywhere that it is difficult to believe it an immigrant.

5. *Talinum teretifolium*, Pursh. A large patch on the sand back of Allen's House. Our specimens nearly destroyed by growth in the portable press. With it, in abundance, was the fungus *Geaster hygrometricus*, Pers.

6. *Potentilla fruticosa*, L. Grows everywhere on the rock at the Dells, sometimes fifty feet above the water.

7. *Rubus* species, *triflorus*, Richardson; *strigosus*, Michx.; *occidentalis*, L; *villosus*, Ait.; *Canadensis*, L. All common. Blackberries were worth only $1.25 per bushel.

8. *Sullivantia Ohionis*, Torr. and Gray. Quite common, especially in the side glens.

9. *Heuchera hispida*, Pursh., is also very common on the moist rocks, and was in blossom, while the smoother plants of the prairies south had been in fruit for several weeks.

10. *Hamamelis Virginica*, L. Common.

11. *Aralia hispida*, Michx. A large patch in fruit on the rock over the Cave of the Dark Waters.

12. *Linnæa borealis*, Gronov. Only seen in the woods at Gates' Ravine.

13. *Campanula rotundifolia*, L. Common.

14. *Gaylussacia resinosa*, Torr. and Gray. Very common. Berries worth $1.50 per bushel.

15. *Vaccinium Pennsylvanicum*, Lam. Very common. Berries worth only $1.00 per bushel.

16. *Epigæa repens*, L. Very common.

17. *Gaultheria procumbens*, L. Very common. This and the three preceding are also found in Southern Wisconsin wherever there is any considerable outcrop of sandstone, such places being known in all the region around as Wintergreen Hills, etc.

18. *Chimaphila umbellata*, Nutt. Very common. Plants here indicate a very close approximation of "cold, damp" and "dry" woods.

19. *Verbena stricta*, Vent. Common on the sand plains near the river. *V. bracteosa*, Michx., grows everywhere with it.

20. *Monarda punctata*, L. Very common on the sand.

21. *Fraelichia Floridana*, Moquin. Very abundant on the sand above Sugar Bowl.

22. *Comptonia asplenifolia*, Ait. Very common on the sand plains near Kilbourn City and on the more barren rock.

23. *Betula papyracea*, Ait. Very common.

24. *Pinus Banksiana*, Lambert. Common on the sandy plains. Known as "Jack Pine."

25. *Pinus Strobus*, L. Growing here, but the Dells are south of the "pine region" of Wisconsin.

26. *Abies Canadensis*, Michx. Very common.

27. *Habenaria Hookeri*, Torr. Not uncommon with *Linnæa*, *Mitchella*, etc. In fruit, but the blossoms not yet fallen.

Compositæ were not at all abundant, but we notice *Liatris cylindracea*, Michx., and *Aster æstivus*, Ait., on the rock opposite Gates' Ravine.

FERNS.—1. *Polypodium vulgare*, L. Very common.

2. *Adiantum pedatum*, L. Quite common.

3. *Pteris aquilina*, L. Quite common.

4. *Pellæa atropurpurea*, Link. On Sugar Bowl, Steamboat Rock, and similar rocks. As thrifty on the sandstone as when growing on the calcareous rock of Southern Wisconsin.

5. *Asplenium Trichomanes*, L. Very common.

6. *Asplenium thelypteroides*, Michx. Not uncommon.

7. *Phegopteris Dryopteris*, Fee. Very common in the side glens.

8. *Aspidium fragrans*, Swartz. This fern, first found within the limits of the United States by Dr. Parry, is not rare on the Wisconsin.

9. *Aspidium spinulosum*, Swartz. The specimens we saved are not of the type nor, with certainty, either of the varieties, for the scales of the stipe are entirely brown, but the lobes of the pinnules are spinulose, and not obtuse. Is not this another of the many plants where the so-called "varieties" are merely forms with individual instead of local peculiarities?

10. *Aspidium marginale*, Swartz. Very common.

11. *Cystopteris bulbifera*, Bernh. Not common.

12. *Cystopteris fragilis*, Bernh. Exceedingly common and variable.

13. *Onoclea sensibilis*, L. Not common.

14. *Woodsia Ilvensis*, R. Brown. The most common rock fern of the Dells.

15. *Osmunda regalis*, L. Common in the glens.

16. *Osmunda Claytoniana*, L. The common fern of the glens.

17. *Botrychium Virginicum*, Swartz. Common.

18. *Camptosorus rhizophyllus*, Link. This undoubtedly grows here, as we have found it on the sandstone further south.

Growing with the ferns is *Lycopodium lucidulum*, Michx.—HERBERT E. COPELAND.

THE INTRODUCTION OF FOREIGN PLANTS.—The subject of the introduction of foreign plants is one of interest to botanists in all sections of the country, and is gradually becoming more so as the geographical distribution of species is being carefully investigated. There are various ways by which this may be effected, and as it can not be told when nor how it may occur, it behooves all lovers of science to keep wide awake, carefully noting the advent of hitherto strangers in Flora's household. The agency of winds is a powerful one in this regard, particularly with respect to that large order, *Compositæ*, the seeds of many of which are furnished with a feathery pappus, and are often carried through the air long distances and deposited on the sides of high mountains, or in the depths of low fertile plains, oftimes a very different location from the usual *habitat*. The flight of birds, doubtless, furnishes one of the most powerful agencies, as their migration, especially near the coast, is sufficiently rapid to carry seeds that will germinate when a proper condition is found. In the southern counties of New

Jersey have been collected many species new to the State, but of frequent occurrence on the coast of Virginia and southward, evidently from seeds carried by birds in their flights coastwise. The importation of grass seed from the west and south has brought us many plants not before met with, and it is highly probable instances of the reverse order may have occurred. A few years ago *Rudbeckia hirta* was almost unknown in Eastern Pennsylvania, though very common throughout the Western States. Now it is to be found on every farm, giving at a distance a golden hue, in strange contrast with the silvery whiteness of the *Leucanthemum vulgare*, now excessively abundant in all our meadows and grass fields.

The large flocks of sheep brought to the Eastern market have been great distributors of those seeds which readily adhere to the wool. I have frequently been shown, in some of our city gardens, plants which have been grown from seeds sent as curiosities from distant localities by absent friends, or gathered as relics of visits to far away places. Even botanists themselves have, perhaps inadvertently, done something in this way. A few years ago I received in exchange a package of plants from Michigan, which I was compelled to allow to remain upon my table for some time before I could get them in their proper places in my herbarium. Fragments, which had become detached in transportation, were all permitted to remain until the whole transfer was complete, when the sweepings from the table, containing many seeds which had fallen were carefully planted, with the satisfaction, in due time, of duplicating some of my specimens.

The arrival at the various seaport towns on the coast of ships with ballast from different parts of the world has probably done the greatest work in this introduction and distribution, and it is one which will continue so long as our country can furnish material to satisfy the wants of other nations. At the port of Philadelphia this has been on a gradual increase for several years, and, as a natural consequence, many plants have been collected which probably have not been found elsewhere in the United States. Aubrey H. Smith published in the Proceedings of the Academy of Natural Sciences of Philadelphia, February, 1867, an article "On Colonies of Plants Observed near Philadelphia," the list appended embracing 106 species, most of which were collected where ballast had been deposited. The list was complete, so far as known at that time, but it is not at all unlikely the number has fully doubled since. Many species are to be found year after year, often in increasing numbers, and are therefore entitled to a place in the flora of our country. In fact, all that occur, or have occurred, though it be but for a single season, should, I think, be so placed upon record, for without doubt many of the large number of plants in Gray's Manual which have "Eu." appended have been introduced in this and similar ways, and we may reasonably expect to find, in a few years, some of these more recent arrivals going forth, ably sustaining themselves against wind and weather, to the delight, possibly to the amazement, of some future students of nature. Several species have been collected this year that have not appeared heretofore, and many of former years have not been seen thus far the present season. I will add a few that have been collected, mostly this year, in order to show what has occurred in the vicinity of Philadelphia, and which may now be occurring at other places on the coast. And I desire to call the attention of botanists to these deposits of ballast as the opening of a field at once new and interesting, and which promises good results to the attentive investigator.

Ranunculus philonotis, Ehrh. One plant only, differing from *R. bulbosus*, L., in having minute tubercles on the carpels.

Sisymbrium Sophia, Linn. Quite abundant. Has occurred for several years.

Sisymbrium Irio, Linn. Collected one plant a few years ago.

Erysimum orientale, Br. A very handsome species, not abundant, but collected on several occasions.

Brassica tenuifolia, Boiss., *B. muralis*, Boiss., *B. monensis*, Hudson, have been collected for several years. *B. tenuifolia* is very abundant this season, and seems to be spreading into the waste grounds.

Alyssum incanum, L. appeared this year for the first, in a limited quantity only.

Reseda Luteola, Linn. Quite abundant this season, and frequent in former years.

Cleome pungens, Wild. Quite abundant two years ago on river dredgings, but rather scarce this season.

Gynandropsis pentaphylla, DC. Two plants this year, collected for the first time.

Silene inflata, Sm., and *S. noctiflora*, Linn., are very common this year.

Lychnis vespertina, Sibth., and the nearly allied *L. diurna*, Sibth. The sterile and fertile plants of both species collected on several occasions.

Tribulus terrestris, L. Very abundant this year, some of the plants covering a space three feet in diameter.

Geranium molle, L. A few plants only this year. Some other species of this genus were collected also.

Erodium cicutarium, L'Her. Abundant, specimens very large.

Medicago falcata, L. Several plants growing, but not so abundant as *M. sativa*, Willd., while *M. lupulina*, L. is very common in all the waste grounds.

Melilotus parviflora, Desf. Quite abundant, as is also *M. alba*, Lam., and *M. officinalis*, Willd.

Lotus corniculatus, L. Collected last year for the first, one plant only. This year it is quite frequent. I found this species very abundant two years ago on the islands of the west coast of Scotland.

Trifolium hybridum, L., maintains itself year after year, and seems to be increasing in abundance.

Lathyrus Aphaca, L. Two plants this year, found for the first time.

Vigna glabra, Savi. Quite abundant. Did not perfect its fruit for a year or two, but does so now to full satisfaction.

Potentilla reptans, L. fairly covers the ground in some places, but it does not incline to flower much. *P. Anserina*, L., is very abundant, appearing year after year.

Scandix Pecten, L. One plant collected this year. It has occurred before, but never many specimens.

Richardsonia scabra, St. Hil. Several plants this year, growing very luxuriantly.

Tussilago Farfara, L., has been more abundant this year than usual.

Aster flexuosus, Nutt., *Solidago sempervirens*, L., and *Pluchea camphorata*, DC., all sea coast plants, occur quite frequently. The *Solidago* this year is very robust, some of the plants being fully four feet high.

Acanthospermum xanthioides, DC. Two plants only; collected this year for the first time.

Artemisia Absinthium, L. Several fine plants this year.

Senecio Jacobæa, L., has been growing for several years, but has never flowered till the present season. Some of the specimens come very near *S. erucifolius*, L., to which it is closely allied.

Carduus pycnocephalus, Jacq. A few plants only, in two localities.

Centaurea solstitialis, L. Very scarce. Collected this year for the first time.

Helminthia echioides, Gærtn. Quite common this season. Its peculiar appearance makes it very conspicuous.

Picris hieracioides, L. One plant only, and that one became destroyed before the fruit fully ripened.

Anagallis cærulea, Sm. Quite common; scarcely less so than *A. arvensis*, L.

Plantago Coronopus, L. A few plants only.

Linaria spuria, Wild. Very abundant in two localities, also *L. Elatine*, Desf. The latter, in one locality, covered a space fully six feet square with its running stems, in a dense mass six inches thick. I had promised myself a full suite of specimens, but on a second visit to the locality, found a ditch had been cut through, entirely destroying every vestige of the plant.

Linaria minor, Desf. Quite abundant.

Antirrhinum Orontium, L. A few plants only.

Scoparia ftaca, Cham. A single specimen this season. A few years ago it was very abundant.

Lycopus Europæus, L., maintains itself year after year.

Ballota nigra, L. A few plants only.

Stachys arvensis, L., and *S. sylvatica*, L. are frequent this year. Some curious forms of *S. palustris*, L., occur in the dry sand.

Heliotropium Europæum, L. Very robust and wide-spreading specimens.

Heliotropium Curassavicum, L., has frequently occurred, but have seen none this year.

Tournefortia heliotropoides, Hook. A few plants only, all of which became destroyed before the fruit fairly ripened.

Solanum sisymbriifolium, Lam. A few plants only, but they were nearly eaten by the potato bug before the fruit perfected.

Datura Metel, L. A single specimen occurred this season.

Nicotiana longiflora, Cav., has occasionally occurred in waste grounds. *N. glauca*, Graham, a few plants only. A very handsome species indeed.

Chenopodium polyspermum, L. Very abundant this year. *C. Vulcaria*, L., quite common. The damp ballast ground seems to be the home for *Chenopodium*, *Amarantus* and *Atriplex* in great quantities and a variety of forms.

Salsola Kali, L., and *Atriplex arenaria*, Nutt., from the sea coast, frequently occur.

Amarantus deflexus, L. One specimen only this year.

Polygonum herniarioides, Deliii, from the Mediterranean region. One plant only this season.

Several *Euphorbias* have been collected, *E. serpens*., H. B. K., occurred a few years ago, but none seen this season. *E. Peplis*, L., three specimens only. *E. Peplus*, L., *E. Helioscopia*, L., and *E. hiberna*, L., are quite frequent.

Carex muricata, L. One plant only.

Agrostis Spica-venti, L. Quite abundant this year. A very conspicuous and handsome grass when in flower.

Colium temulentum, L. Quite frequent.

Lolium temulentum, L. Quite frequent.

Holcus mollis, L. A few plants only.

Phragmites communis, Trin. In dry sand. Prof. Porter says "one of its many forms;" but it looks strange in comparison with specimens from the Southern States.

Andropogon halepensis, Sibth. A few specimens.

Panicum miliacea, L. Quite abundant.

A great many species that are already described in Gray's Manual as introduced plants occurred abundantly both in this and former years, evidently recent importations, but I did not deem it essential to include them in this article. Many strange looking plants have appeared, that have never flowered, hence could not be determined, and some biennials have appeared this year that may flower next, if the winter be not too severe. It would be interesting to know if ballast deposited at other places produces the same kind of plants.—ISAAC C. MARTINDALE, *Camden, N. J., September 12th*, 1876.

P. S.—Since the above was written I collected, near the Wissahickon Station, on the Philadelphia & Reading Railroad, about four miles from Philadelphia, *Leonurus glaucescens* Bauge. This plant is from Northern Asia, and how it could get into the above locality is somewhat of a mystery, as no ballast material has been transported to that neighborhood, and it is not a garden plant, in this country, at least; it is possible, however, that the seeds may have been introduced among the exhibits to the Centennial Exposition, by way of Japan. It is very abundant this year, in the locality above mentioned, and the seeds have fully ripened, but it remains to be seen whether it will reproduce itself another year or not.—I. C. M.

NOTES ON THE TILLANDSIA.—These singular air plants, with two exceptions, I believe, are confined to the State of Florida. The Long Moss extends its range, and is met in all humid situations through the Southern coast states. Bartram's plant is credited by its author as growing in Southern Georgia. It was my good fortune to meet all the species in the growing state within the short period of three months, and, therefore, enjoyed the opportunity for their study. These plants are firmly attached to the limbs or trunks of trees by strong fibrous roots. They adhere, especially the larger ones, with such tenacity that it often requires some effort to effect their separation. Singularly strange, they seem to have a predilection to the Live Oak and Cypress. The *T. recurvata*, Pursh., was found growing upon old fences around Gainsville, but, with this exception, I do not recollect having seen any on other than their two favorite trees. The Cypress usually grows in low, wet situations, in circumscribed areas through the extensive pine forests, and the Live Oak selects, likewise, damp situations, preferably rich hummock soil. But these trees completely monopolize the ground where they grow, and are constantly surrounded by an atmosphere which is peculiarly humid; also, their foliage intercepts well the piercing rays of the hot sun, conditions essentially requisite to the growth of the *Tillandsia*. It is therefore presumable that these air plants seek these trees more on account of the shade and damp atmosphere than any inherent property in the bark which would favor their germination and attachment. Exposed to the hot sun and drier atmosphere, they soon lose their healthy appearance, and become stunted in their growth. This change I have frequently noticed in specimens which had been removed to shade trees around dwellings. All are vernal species except the Long Moss, which flowers during the summer.

T. utriculata, Leconte, occurs abundantly on the upper St. Johns River and the Keys south of Manatee. It is usually two to four feet high, yet it grows taller. My French guide carried a stalk from a rich hummock to his palmetto cabin which measured about seven feet. The stems of the larger plants branch considerably, while the smaller ones do so but sparingly. The flowers are white, and not blue, as in the next five species.

T. bracteata, Chapman, the most handsome of all the Tillandsias, with its large, bright and scarlet bracts, attracts one's attention from quite a distance. It is beautiful, and would be really an acceptable acquisition to our collection of exotics. This species is not common. I met it in about 28° lat., at Lake Monroe, Tampa, and Keys further South.

T. bulbosa, Hook, resembles smaller growths of the next species, but the blue-green color of the plant, the spreading and recurving of the leaves, and the ovoid bulb formed by the dilated leaves at the base, are at once good characters for discrimination. It appeared rare and was seen sparingly in Hillsboro and Manatee counties.

T. juncea, Leconte, grows abundantly in the hummocks along the upper St. Johns River. It seems very prolific, as every Live Oak and Cypress is full of it in its circumscribed localities.

T. Bartramii, Ell, on account of its green leaves, appears not unlike tufts of green grass growing on the limbs of trees. It is the only species which does not have the scurf on the leaves. It occurs sparingly on the Keys south of Sarasota, the only locality observed. At Palatka grows *T. caespitosa*, Leconte, and forms large reddish clusters on the trunks and larger limbs of trees. I observed it frequently along the St. Johns River as far south as Lake George. The isolated clusters of a reddish appearance are characteristic of this species, and enable one to separate it readily in its general appearance from *T. juncea*, Leconte, which it somewhat resembles. *T. recurvata*, Pursh, in a bunch might be mistaken for the Long Moss, but the single plants are characteristic in their upright stem and recurved leaves. This is the smallest species, and was detected growing on old fences and the Live Oak at Gainsville, the only locality observed.

T. usneoides, L., the last and perhaps the most generally admired by all observers. Its beautiful festoons and pendulous bunches of gray foliage, suspended from the wide-

spreading branches of the Live Oak, give it a novel and grotesque appearance to the Northern traveler, and all admire it, and cull tufts as mementos of the sunny South. It is much used in decorating halls, dining and sitting rooms. It contributes, also, as an article of commerce in the manufactured state. It is shipped in bales to Northern upholsterers, who use it as a good substitute for hair. In preparing for market, the dead moss only is used. The colored people convey it in bundles their usual way, or on carts, to the gin, where they dispose of it for a small consideration. Thus received, it is placed in water until thoroughly saturated, after which it is thrown on large stacks, and is allowed to pass through a process of sweating. It is then separated, dried and ginned. In the process of ginning, the strong woody fibre in the stem becomes denuded of its leafy and bark-like covering. It is this fibre which constitutes the article of commerce. It is a glossy brown color, and quite strong. Some, by special desire of purchasers, is dyed black, so as to more nearly resemble hair. A superior article is that which has further been subjected to a process of picking, by which all foreign matter is eliminated.—Dr. A. P. Garber, *Columbia, Penn.*

Some Forking Spikes.—I was much interested in the remarks on *Plantago* in your September issue. The *Plantago major*, with branching leafy spikes, has occurred here for several years. It first attracted my attention in 1862; then for several seasons I did not collect a specimen. For the past year or two it has been increasingly abundant, sometimes with every part of the plant covered with a dense pubescence, again, perfectly smooth and shining.

A few years ago I collected along the Schuylkill River, near Philadelphia, the *Botrychium Virginicum*, Swartz, with the fertile frond branched somewhat in a similar manner, two, three, or even four branches. On examining the plants to ascertain, if possible, the cause, I found in every case there had been an injury in the early stage of the plant, by which the fertile segment had been broken off, and from that point the branches started. Of course all of them were without the direct terminal spike, which is not the case in the *Plantago*. Several other species of ferns are found here, with occasionally forking or branching fronds.

A short time ago I collected the *Setaria glauca*, Beauv., with a forked spike, but in no other way differing from the ordinary form of the species.—Isaac C. Martindale, *Camden, N. J.*

Proceedings of the Davenport Academy of Natural Sciences. Vol. I, 1867–1876.—This is a thick, well-printed pamphlet of 284 pages, containing 36 plates, principally lithographic, and 10 pages devoted to their explanation. In the preface is given the origin and history of the Academy, and the circumstances under which this first volume of proceedings is issued. Organized on the 14th of December, 1867, it passed through several stages of advance and decline, but within the past two or three years it has begun to enjoy a very prosperous existence. In 1875 it was thought that sufficient material had been collected to warrant the Academy in commencing the publication of its proceedings, and the present volume is the result. It is the intention, if possible, to issue an additional number of proceedings as often as once a year. The price of the volume is $2.50.

Calandrinia Leana, Porter.—Dr. Gray reports this species, described in the October Bulletin, as discovered also, later in the month of August, in Siskiyou county, California, by the Rev. E. L. Greene.

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